FIG. 1

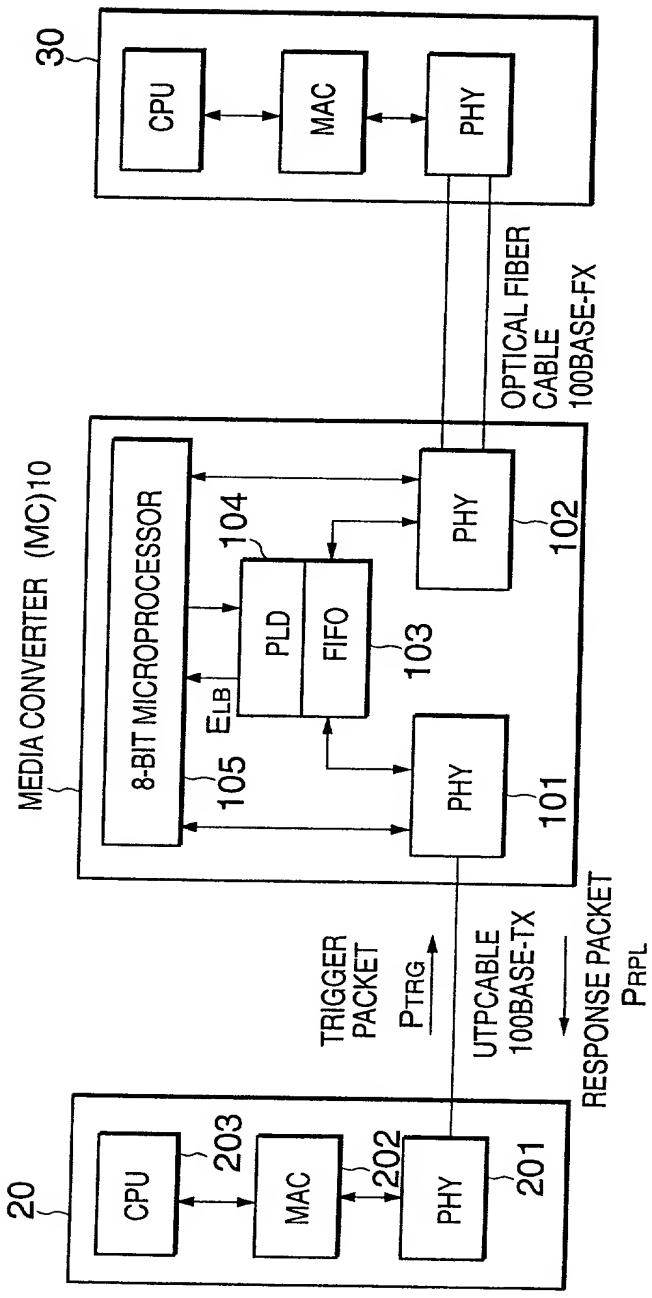
30
CPU
MAC
PHY
OPTICAL FIBER CABLE 100BASE-FX
MEDIA CONVERTER (MC)10
8-BIT MICROPROCESSOR
104
PLD
FIFO
103
ELB
105
PHY
102
PHY
101
TRIGGER PACKET
PTRG
UTPCABLE 100BASE-TX
RESPONSE PACKET PRPL
20
CPU
203
MAC
202
PHY
201

FIG. 2

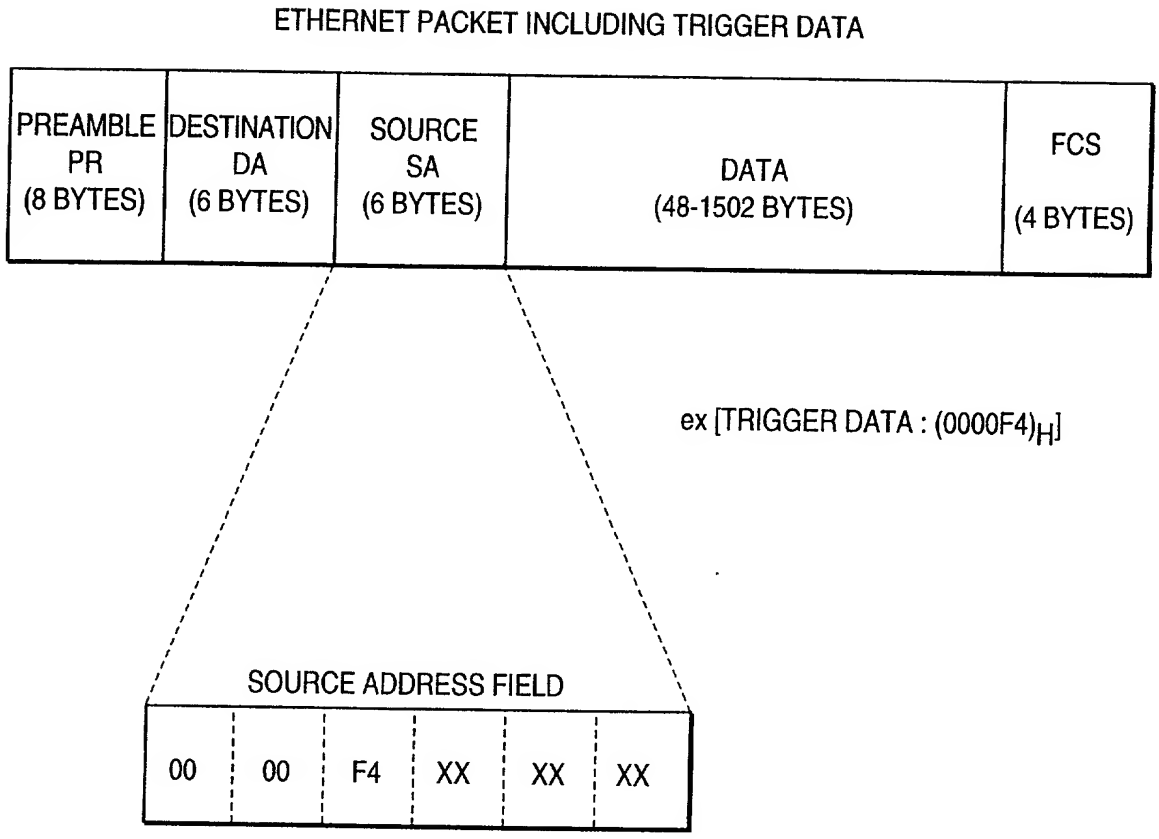
ETHERNET PACKET INCLUDING TRIGGER DATA
PREAMBLE
PR
(8 BYTES)
DESTINATION
DA
(6 BYTES)
SOURCE
SA
(6 BYTES)
DATA
(48-1502 BYTES)
FCS
(4 BYTES)
ex [TRIGGER DATA : (0000F4)H]
SOURCE ADDRESS FIELD
00
00
F4
XX
XX
XX

FIG. 3

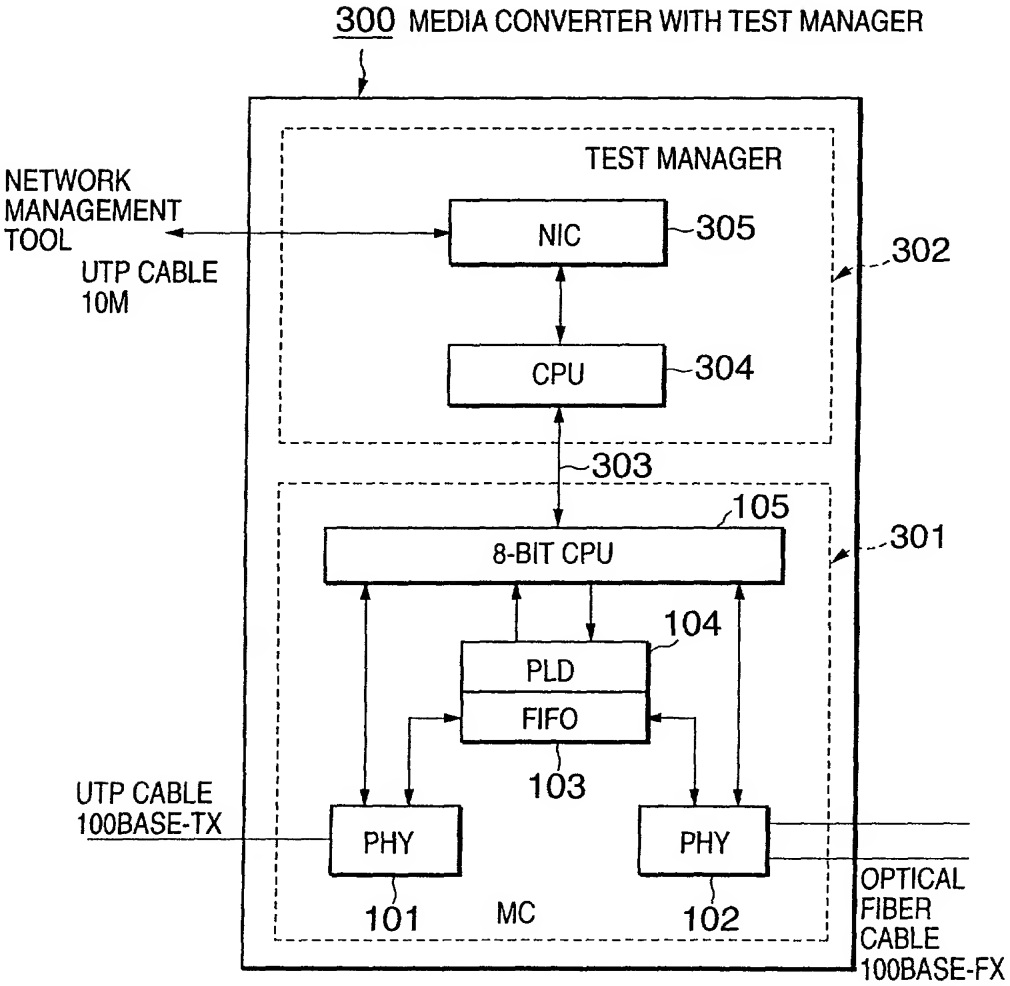
300 MEDIA CONVERTER WITH TEST MANAGER
TEST MANAGER
NETWORK MANAGEMENT TOOL
UTP CABLE 10M
NIC
305
302
CPU
304
303
105
8-BIT CPU
301
104
PLD
FIFO
103
UTP CABLE 100BASE-TX
PHY
PHY
OPTICAL FIBER CABLE 100BASE-FX
101
MC
102

FIG. 4

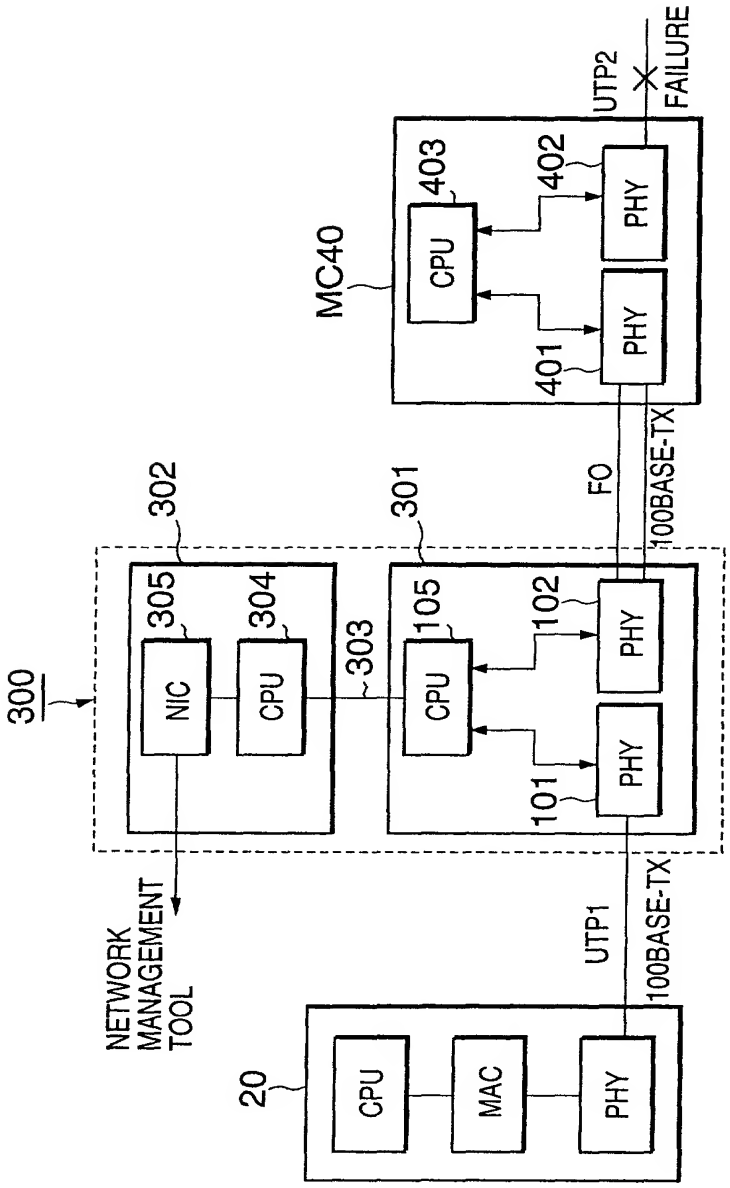
300
NETWORK MANAGEMENT TOOL
NIC
CPU
305
304
302
303
CPU
105
102
PHY
PHY
101
301
20
CPU
MAC
PHY
UTP1
100BASE-TX
FO
100BASE-TX
MC40
CPU
403
402
PHY
PHY
401
UTP2
FAILURE

FIG. 5

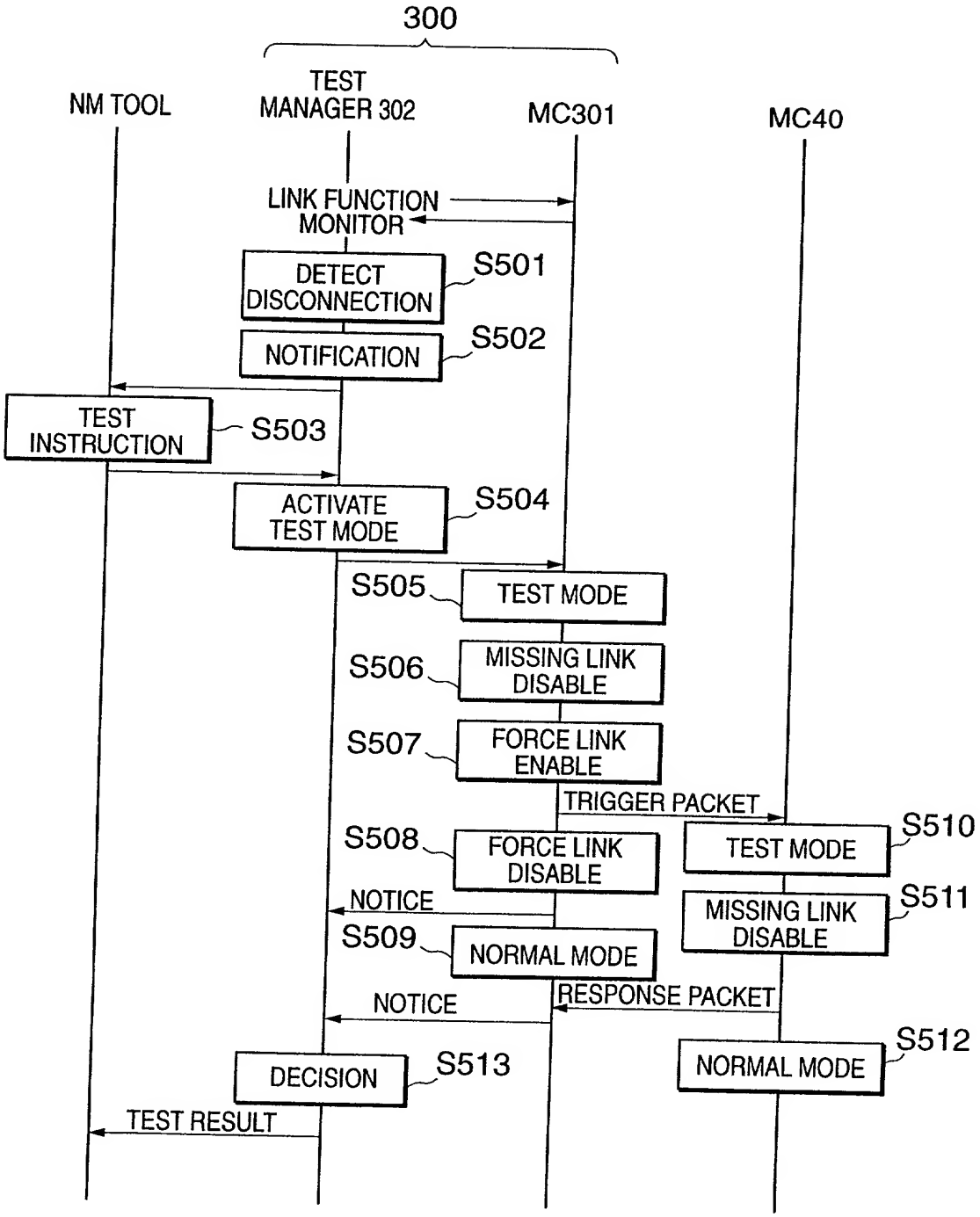
300
NM TOOL
TEST MANAGER 302
MC301
MC40
LINK FUNCTION MONITOR
DETECT DISCONNECTION
S501
NOTIFICATION
S502
TEST INSTRUCTION
S503
ACTIVATE TEST MODE
S504
S505
TEST MODE
S506
MISSING LINK DISABLE
S507
FORCE LINK ENABLE
TRIGGER PACKET
S508
FORCE LINK DISABLE
TEST MODE
S510
NOTICE
MISSING LINK DISABLE
S511
S509
NORMAL MODE
RESPONSE PACKET
NOTICE
S512
NORMAL MODE
DECISION
S513
TEST RESULT

FIG. 6

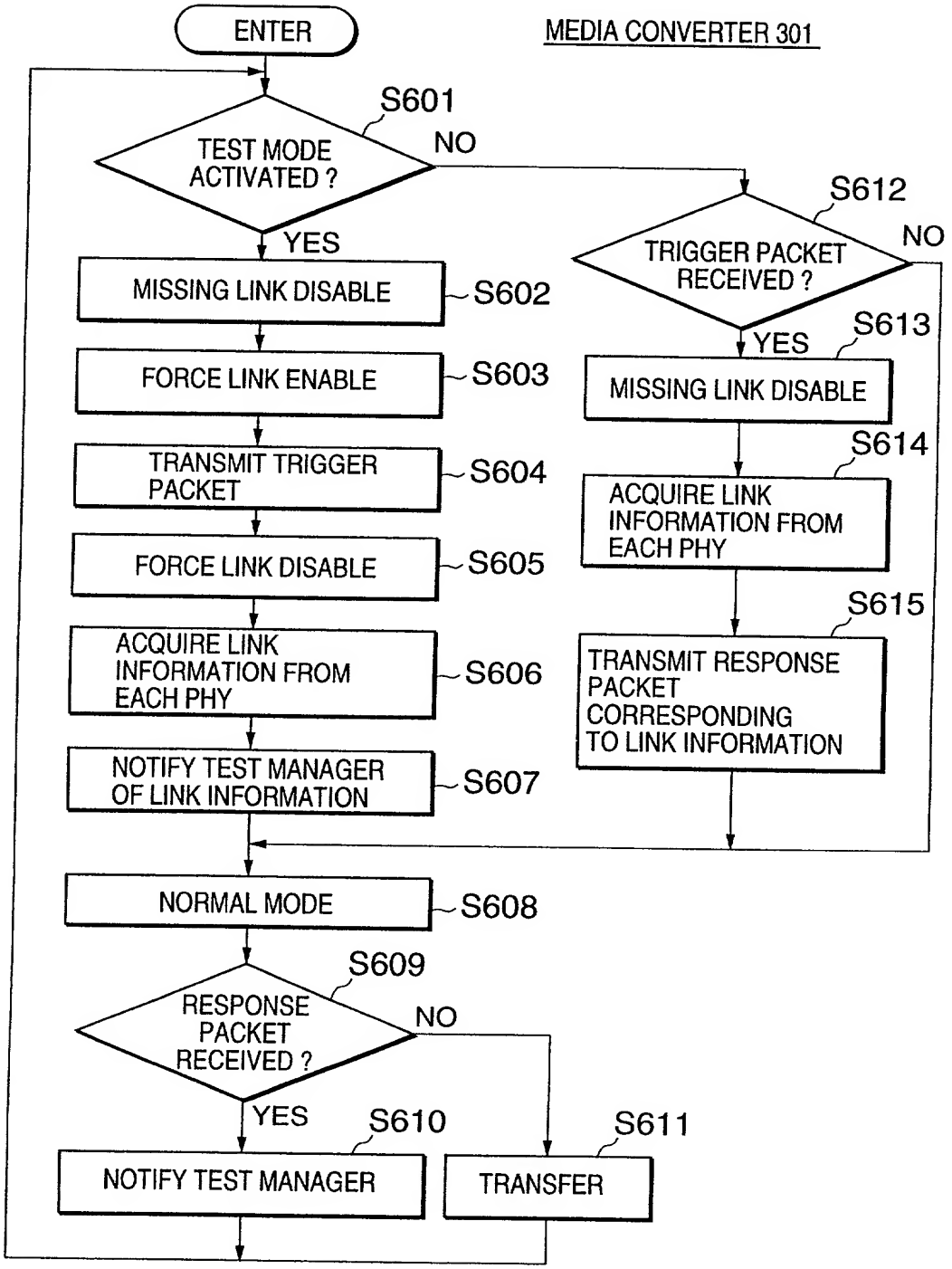
ENTER
MEDIA CONVERTER 301
S601
TEST MODE ACTIVATED ?
NO
YES
S612
TRIGGER PACKET RECEIVED ?
NO
YES
S613
MISSING LINK DISABLE
S602
FORCE LINK ENABLE
S603
TRANSMIT TRIGGER PACKET
S604
FORCE LINK DISABLE
S605
ACQUIRE LINK INFORMATION FROM EACH PHY
S606
NOTIFY TEST MANAGER OF LINK INFORMATION
S607
S614
ACQUIRE LINK INFORMATION FROM EACH PHY
S615
TRANSMIT RESPONSE PACKET CORRESPONDING TO LINK INFORMATION
NORMAL MODE
S608
S609
RESPONSE PACKET RECEIVED ?
NO
YES
S610
NOTIFY TEST MANAGER
S611
TRANSFER

FIG. 7

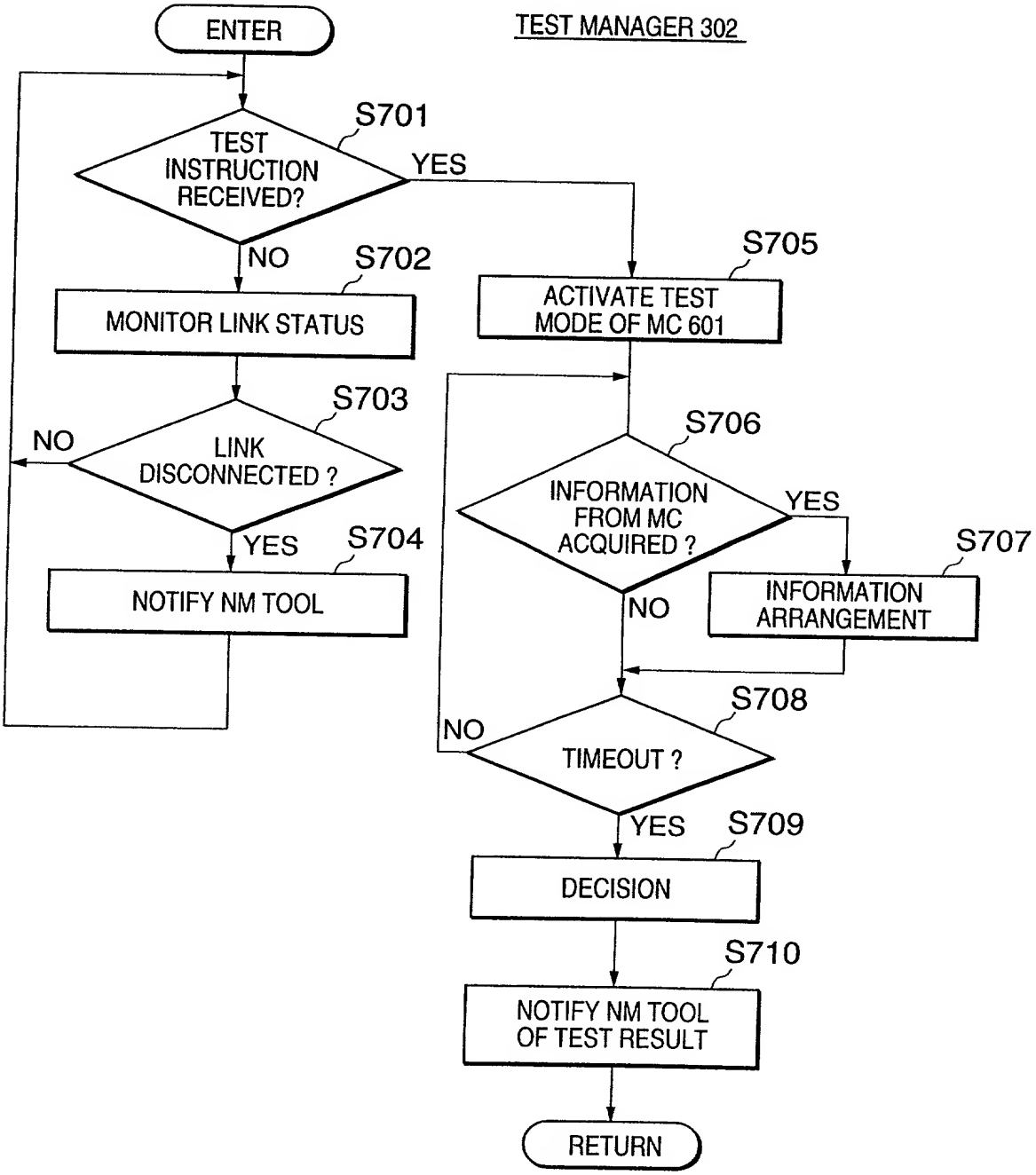
TEST MANAGER 302
ENTER
S701
TEST INSTRUCTION RECEIVED?
YES
NO
S702
MONITOR LINK STATUS
S703
LINK DISCONNECTED ?
NO
YES
S704
NOTIFY NM TOOL
S705
ACTIVATE TEST MODE OF MC 601
S706
INFORMATION FROM MC ACQUIRED ?
YES
NO
S707
INFORMATION ARRANGEMENT
S708
TIMEOUT ?
NO
YES
S709
DECISION
S710
NOTIFY NM TOOL OF TEST RESULT
RETURN

FIG. 8

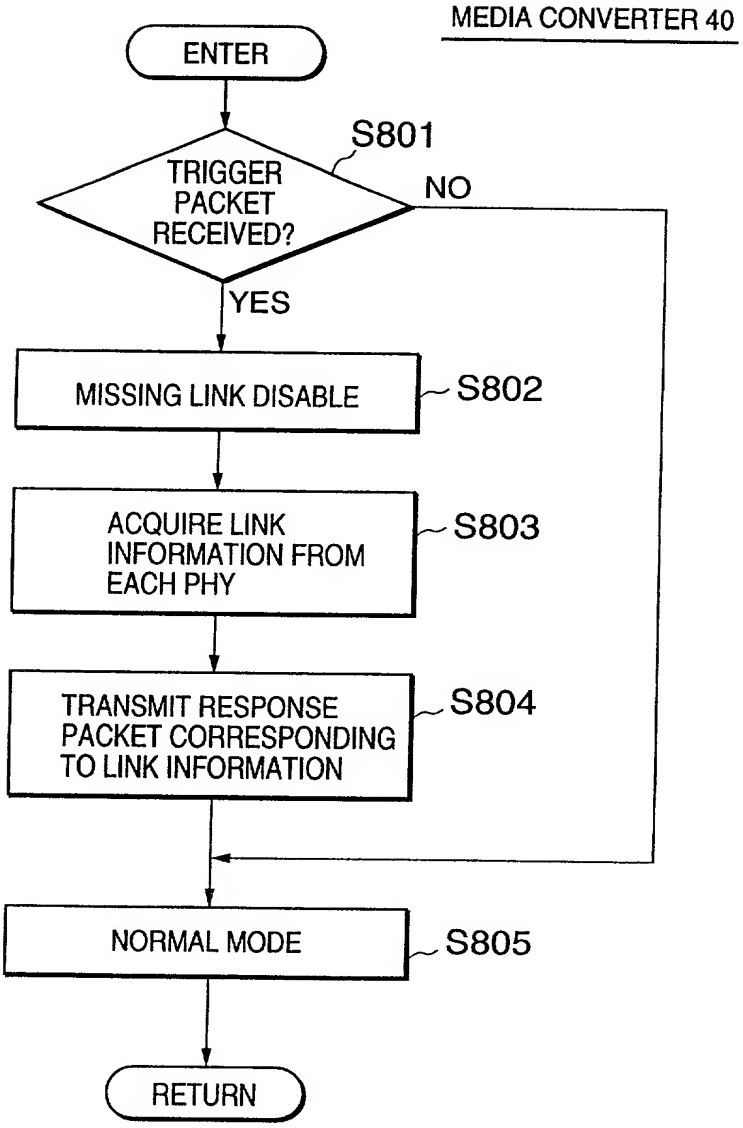
MEDIA CONVERTER 40
ENTER
S801
TRIGGER PACKET RECEIVED?
NO
YES
MISSING LINK DISABLE
S802
ACQUIRE LINK INFORMATION FROM EACH PHY
S803
TRANSMIT RESPONSE PACKET CORRESPONDING TO LINK INFORMATION
S804
NORMAL MODE
S805
RETURN

FIG. 9

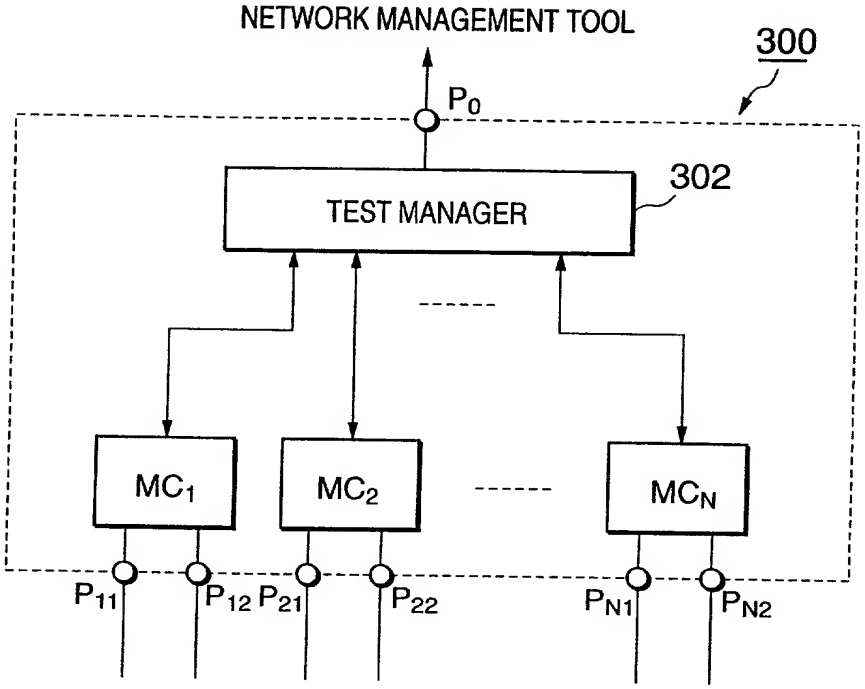
NETWORK MANAGEMENT TOOL
300
P_0
TEST MANAGER
302
MC_1
MC_2
MC_N
P_{11}
P_{12}
P_{21}
P_{22}
P_{N1}
P_{N2}

FIG. 10

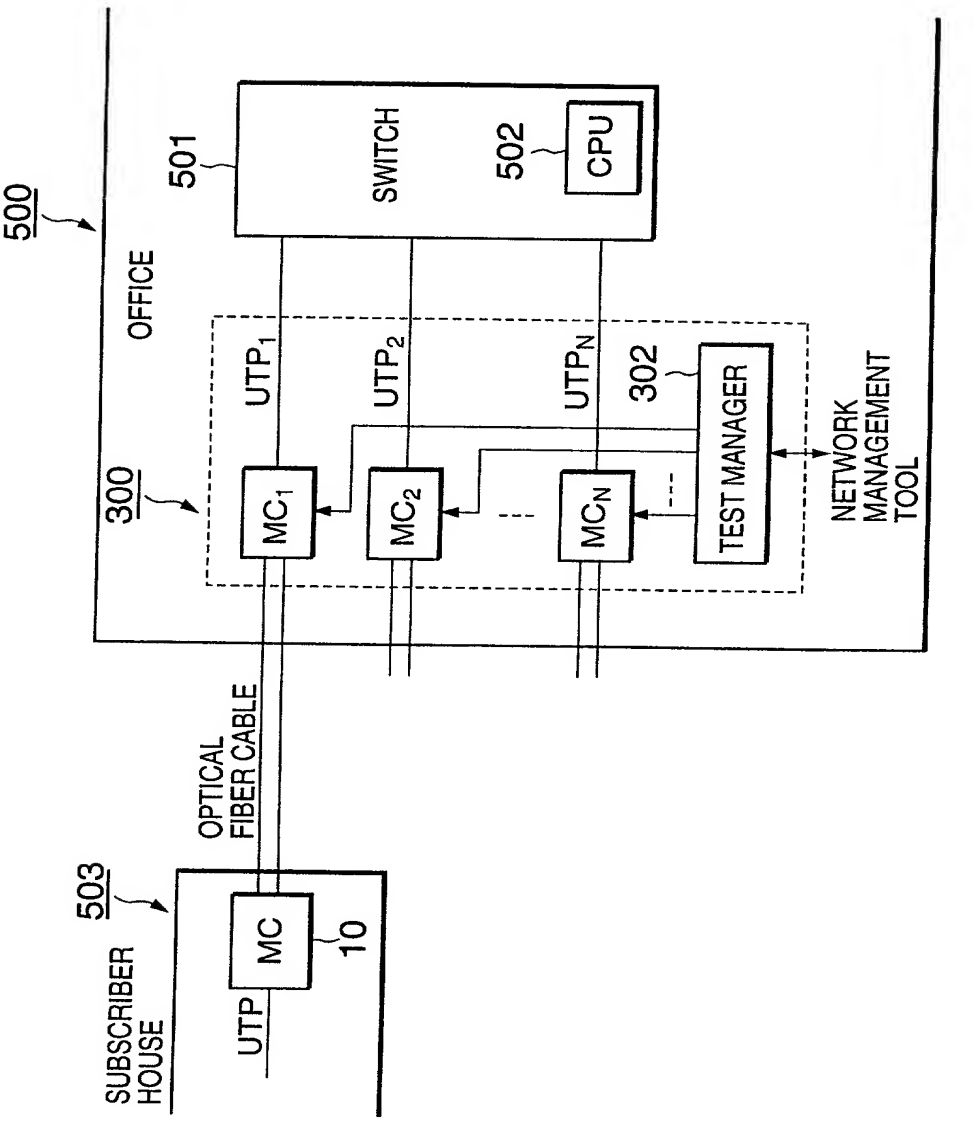
500
OFFICE
501
SWITCH
502
CPU
300
UTP1
UTP2
UTPN
302
MC1
MC2
MCN
TEST MANAGER
NETWORK MANAGEMENT TOOL
OPTICAL FIBER CABLE
503
SUBSCRIBER HOUSE
MC
10
UTP

FIG. 11

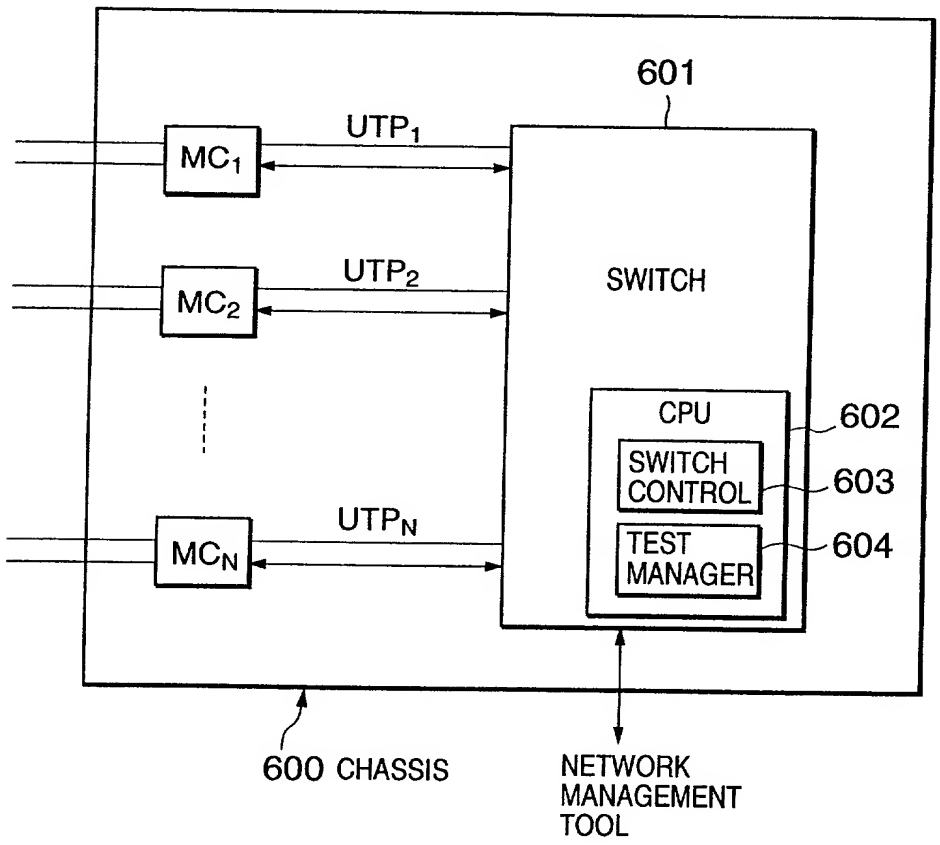
601
UTP1
MC1
UTP2
MC2
SWITCH
CPU
602
SWITCH CONTROL
603
UTPN
MCN
TEST MANAGER
604
600 CHASSIS
NETWORK MANAGEMENT TOOL

FIG. 12

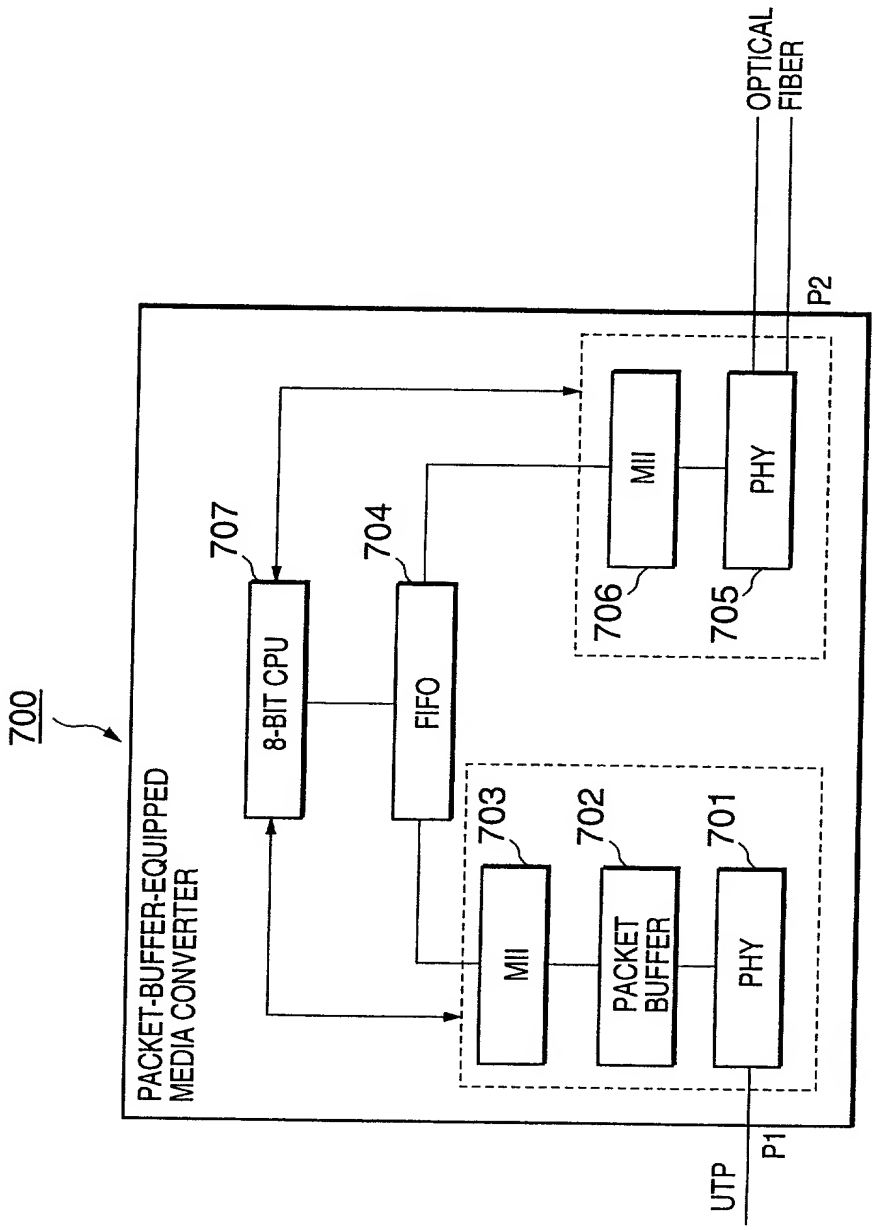
700
PACKET-BUFFER-EQUIPPED MEDIA CONVERTER
8-BIT CPU
FIFO
MII
PACKET BUFFER
PHY
MII
PHY
707
704
703
702
701
706
705
OPTICAL FIBER
P2
UTP
P1

FIG. 13

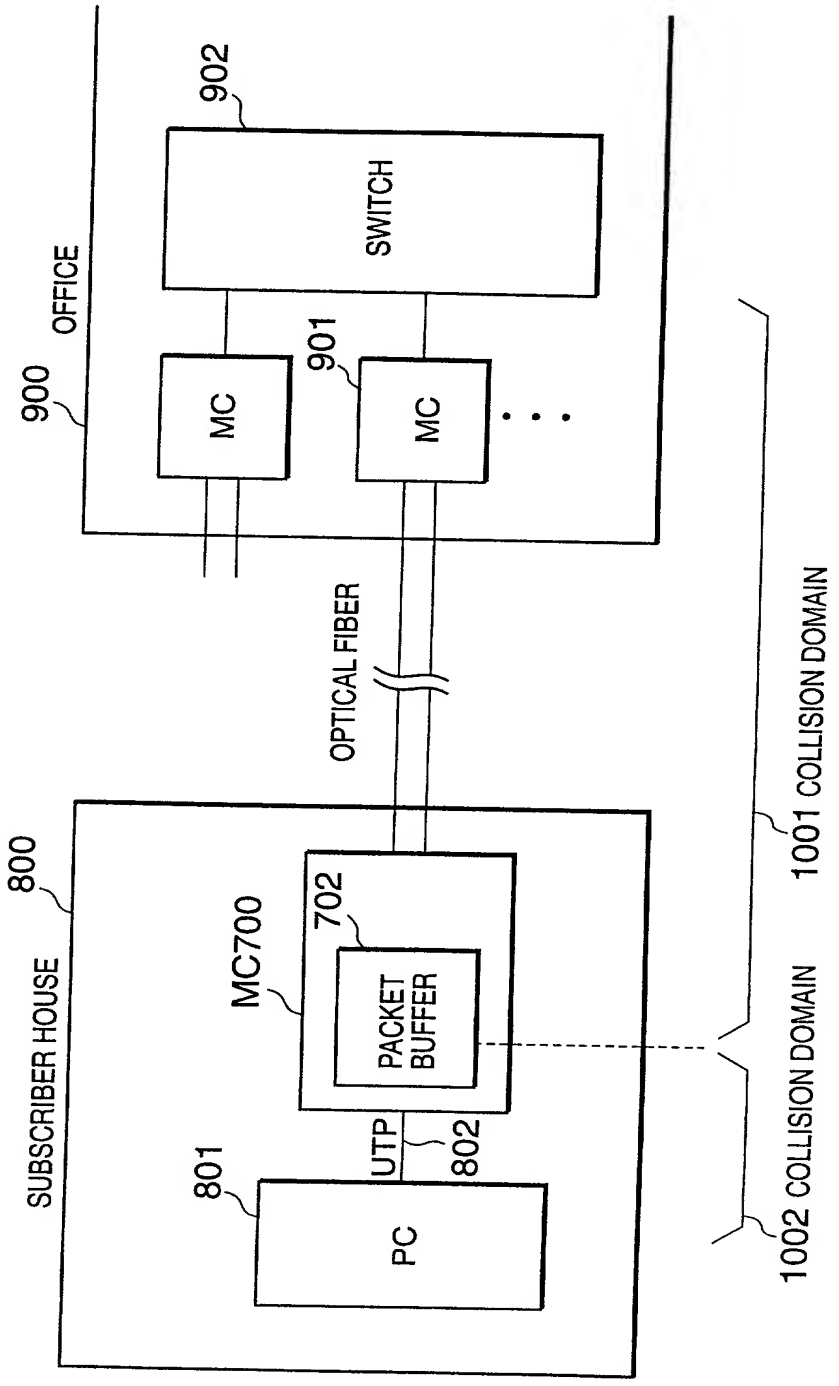
902
SWITCH
900
OFFICE
MC
901
MC
OPTICAL FIBER
800
SUBSCRIBER HOUSE
MC700
702
PACKET BUFFER
UTP
802
801
PC
1001 COLLISION DOMAIN
1002 COLLISION DOMAIN

FIG. 14A

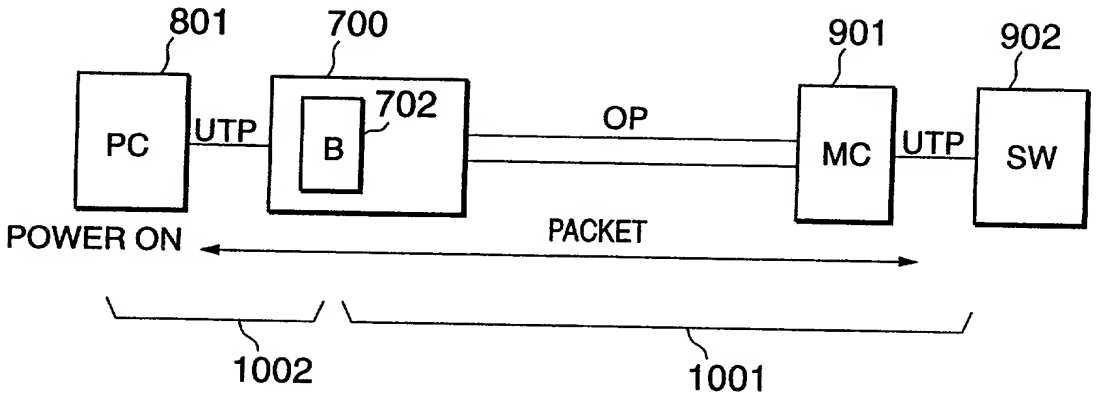

FIG. 14B

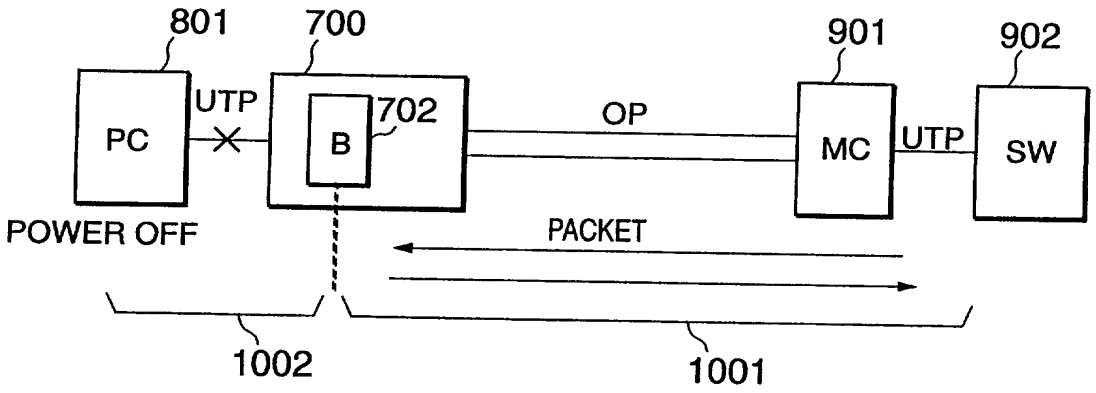
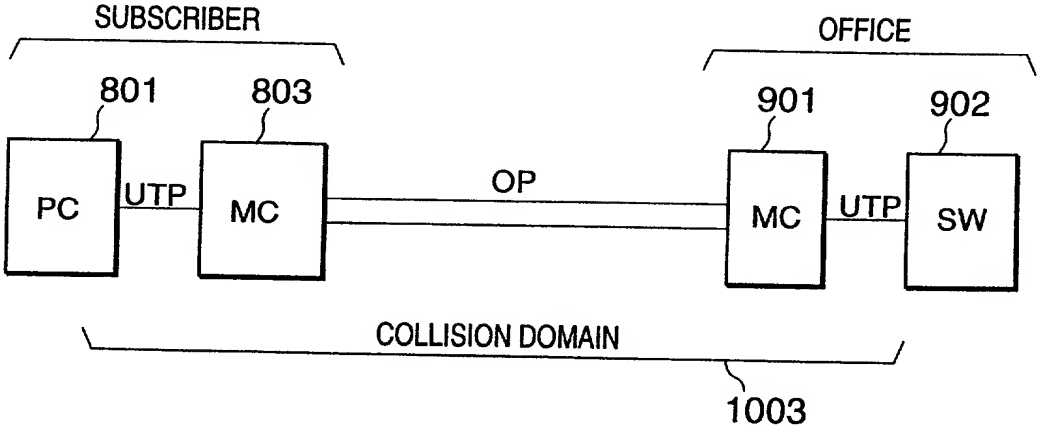
FIG. 14C (PRIOR ART)